noise level (dBA in Leq) will cause a depreciation of a property by 0.34% of its sale price. The procedure presented in this research could thus provide state transportation agencies with hard data for establishing cost criteria for noise barrier construction decisions.

<u>Dae S., Cho. and Mun, S. (2008): "Study to Analyze the Effects of Vehicles and Pavement Surface Types on Noise"</u>

The effects of vehicles and pavement surface types on noise have been investigated at the Korea Highway Corporation's Test Road along the southbound side of the Jungbu Inland Expressway, South Korea. The study was conducted in 2005 and 2006 through field measurements at nine surface sections of asphalt concrete and Portland cement concrete pavements using eleven vehicles. For the road noise analysis, the sound power levels (PWLs) of combined noise (e.g., tire-pavement interaction noise and power-train noise together) and tire-pavement interaction noise using various vehicles were calculated based on the novel close proximity (NCPX) and pass-by methods. Then, the characteristics of the PWLs were evaluated according to surface type, vehicle type, and vehicle speed. The results show that the PWLs of vehicles are diversely affected by vehicle speed and the condition of the road surface.

<u>Donavan, P. (2010): "The Acoustic Radiation from Pavement Joint Grooves Between Concrete Slabs." TRB 2010 Annual Meeting</u>

The sound generation and radiation from grooves in the joints between concrete slabs were modeled using relationships previously established for tire groove resonances and groove air pumping. Resonance behavior was clearly established from both in-lab and on-road on-board sound pressure level data. The strength of the noise source was found to be proportional to 20 times the logarithm of the groove cross-sectional area. This relationship along with the accounting of residual texture, background noise was found to replicate that measured in the lab testing. The model was then calibrated using the lab results and extended in speed range using a theoretical calculation of the sound radiation from the end of the joint groove. The predicated level produced by an isolated joint of specified dimension was then used to model the average sound intensity level for a pavement with a user specified distance between joints, vehicle speed, and pavement texture generated level. For smaller groove cross sectional areas (~0.25 in^2), the contribution of joint grooves was found to be on the order of 1 dBA for quieter pavement textures. For larger cross sectional areas, such as a groove width of ½ in and depth of 1 in, the contribution increases almost 3 dBA.